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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,648	11/26/2003	Allan R. Wells	89190.070503/DP-308340	8779
22851 7590 03/04/2009 DELPHI TECHNOLOGIES, INC. M/C 480-410-202 PO BOX 5052 TROY, MI 48007				
EXAMINER				
MARTIN, ANGELA J				
ART UNIT		PAPER NUMBER		
1795				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/723,648

Applicant(s)

WELLS ET AL.

Examiner

ANGELA J. MARTIN

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-9,14 and 17-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-9,14 and 17-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/08)
Paper No(s)/Mail Date 11/26/08.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application.
- 6) ☐ Other: _____.

DETAILED ACTION

This Office Action is responsive to the Amendment filed on November 18, 2008. The Applicant has amended claims 14, 17; canceled claim 15; and added new claims 21-28. However, the rejection is made final for the following reasons of record.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3-9, 14, 16-21, 23, 26, 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Yang, U.S. Pat. Application Pub. 2002/0110720 A1.

3. Rejection of claims 1, 3-9, 18-21, 23 drawn to a method of forming a fuel cell assembly; claims 14, 16, 17, 26, 28 drawn to a fuel cell assembly.

Yang teaches a method for forming a fuel cell assembly, comprising the steps of: a) forming a fuel cell sub-assembly module containing at least two bonded together fuel cell units, said at least two fuel cell units each including an anode, a cathode, and a membrane electrode assembly (0019; 0034);

b) testing said sub-assembly module (0019); and

c) joining together a plurality of sub-assembly modules to form said fuel cell assembly

(0034). A method in accordance with claim 1 wherein each of said sub-assembly modules comprises a plurality of bipolar plate assemblies (abstract) interspersed with a plurality of membrane electrode assembly elements (abstract).It teaches a method in accordance with Claim 1 wherein said forming step for each of said sub-assembly modules includes the steps of:

- a) providing an assembly fixture having at least one alignment element for receiving fuel cell components (0013, 0016):
- b) selecting $n+1$ number of bipolar plate assemblies and n number of membrane electrode assembly elements, each bipolar plate assembly having an anode and a cathode, wherein n is the number of said plurality of fuel cell units desired in said sub-assembly module (0034);
- c) providing an elastomeric gasket on one of said anode and cathode of $n+1$ bipolar plate assemblies (0013, 0015);
- e) installing onto said assembly fixture one of said $n+1$ bipolar plate assemblies, said alignment element engaging said one of said $n+1$ bipolar plate assemblies (0013, 0016);
- f) installing onto said assembly fixture a membrane electrode assembly element into contact with said just-installed bipolar plate assembly (0030); g) installing onto said assembly fixture another of said $n+1$ bipolar plate assemblies, the anode of said one or said another of said $n+1$ bipolar plate assemblies being disposed adjacent said cathode of the other of said one or said another of said $n+1$ bipolar plate assemblies, and said alignment element engaging said bipolar plate assembly being installed (0013, 0016);
- repeating steps f) and g) for the remaining number of provided bipolar plate assemblies

and provided MEA elements to form a stack of n fuel cell units;

i) applying compressive force (abstract, 0013, 0016, 0017) to said stack of n fuel cell units whilst curing said curable liquid rubber material of said at least one of said elastomeric gasket and said gasketing element to form a fuel cell sub-assembly module (0020, 0031, 0032). A method in accordance with Claim 4 wherein at least one of said membrane electrode assemblies includes gas diffusion layers (claim 1). A method in accordance with Claim 4 wherein said at least one alignment element is a rod (0013, 0016), wherein each of said bipolar plate assemblies include a bore (Fig. 2, rods 9 fit through bores), and wherein each of said bores receive said rod to align said bipolar plate assemblies (implied, since it discloses tie rods in which a bore would go through (Fig. 2). A fuel cell assembly comprising a plurality of fuel cells bonded together to form a plurality of fuel cell sub-assembly modules, wherein said plurality of fuel cell sub-assembly modules are bonded together to form said fuel cell assembly, wherein at least one of said fuel cells includes a bipolar plate assembly and a membrane electrode assembly (0034). A fuel cell assembly in accordance with Claim 14 wherein at least one gasket and at least one gasketing element are positioned between each of said plurality of fuel cells (0015-0017). A fuel cell assembly in accordance with Claim 14 wherein at least one gasket and at least one gasketing element are positioned between each of said plurality of fuel cell sub-assembly modules (0015-0017). A method in accordance with Claim 1 wherein said at least two fuel cell units are bonded together using at least one elastomeric gasket and at least one gasketing element (0015-0017). A method in accordance with Claim 1 wherein said plurality of sub-assembly modules are joined

together using at least one elastomeric gasket and at least one gasketing element (0015-0017). A method in accordance with Claim 18 wherein one of said at least one elastomeric gasket or said at least one gasketing element is cured prior to bonding together said at least two fuel cell units, and the other of said at least one elastomeric gasket and said at least one gasketing element is cured during the bonding together of said at least two fuel cell units (0020; 0031-0033; 0036; 0037). A method in accordance with Claim 19 wherein one of said at least one elastomeric gasket or said at least one gasketing element is cured prior to joining together at least two of said plurality of sub-assembly modules, and the other of said at least one elastomeric gasket and said at least one gasketing element is cured during the joining together of said at least two of said plurality of sub-assembly modules (0020; 0031-0033; 0036; 0037). A fuel cell assembly in accordance with Claim 14 wherein said membrane electrode assembly is positioned between at least one of said at least one gasket and said at least one gasketing element (Fig. 4-6; ref. 13 membrane electrode assembly, 19 gasket). A fuel cell assembly in accordance with Claim 17 wherein said membrane electrode assembly is positioned between at least one of said at least one gasket and said at least one gasketing element (Fig. 4-6; ref. 13 membrane electrode assembly, 19 gasket).

Thus, the claims are anticipated.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 22, 24, 25, 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang, U.S. Pat. Application Pub. 2002/0110720 A1.

Yang teaches a fuel cell assembly and method as described above.

Yang does not teach at least one gasketing element has a thickness of no more than about .005 inches.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Response to Arguments

4. Applicant's arguments filed 11/18/08 have been fully considered but they are not persuasive. Applicant argues that the "Yang reference does not teach or suggest a method for forming a fuel cell assembly including the step of testing a fuel cell sub-assembly module containing at least two bonded together fuel cell units as recited in claim 1." However, Fig. 3 of Yang shows one unit; Fig. 4 of Yang shows three units

which is described as a module in Yang (0017). Fig. 4 is a representation of steps (a) and (b) of independent claim 1; Fig. 2 is a representation of step (c) of independent claim 1.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yoshimoto et al., U.S. Pat. 6,180,274 B1 teach a fuel cell stack. Carlstrom, Jr, U.S. Pat. 6,071,635 teach a fuel cell stack.
6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANGELA J. MARTIN whose telephone number is

(571)272-1288. The examiner can normally be reached on Monday-Friday from 10:00 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AJM
Examiner, Art Unit 1795

/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795